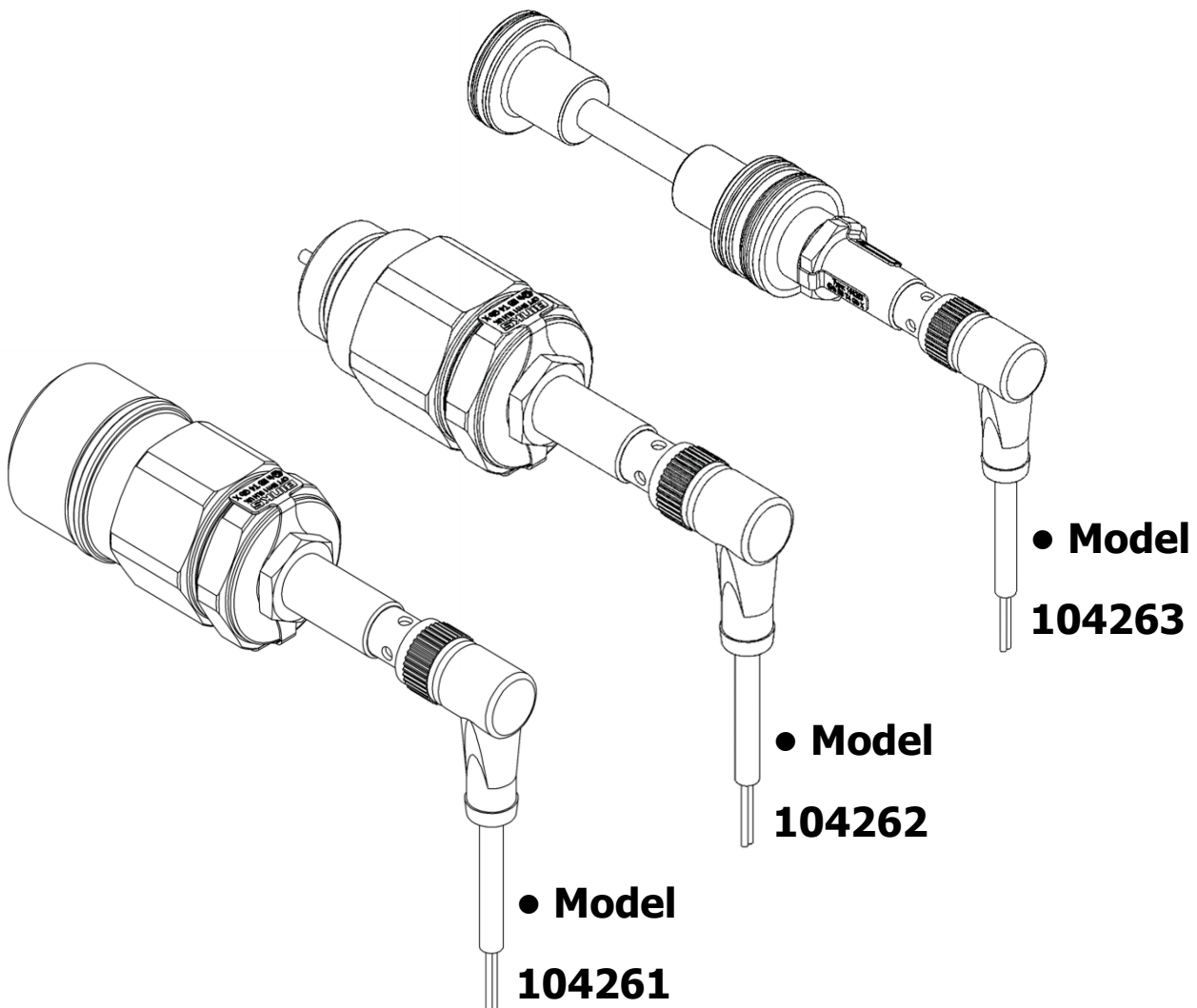




Pneumatic Pump Electronic Cycle Counter



IMPORTANT! DO NOT DESTROY

It is the Customer's responsibility to have all operators and service personnel read and understand this manual.

Contact your local Carlisle Fluid Technologies representative for additional copies of this manual.

READ ALL INSTRUCTIONS BEFORE OPERATING THIS PRODUCT

This Product is designed for use with: Solvent and Water based materials

Suitable for use in hazardous area: Zone 1 / Zone 2

Protection Level: h IIB T4 Gb X

Notified body details and role: Element Materials Technology (2812)
Lodging of Technical file

This Attestation of conformity is issued under the sole responsibility of the manufacturer: Carlisle Fluid Technologies UK Ltd,
Ringwood Road,
Bournemouth, BH11 9LH. UK

Attestation of Conformity



The object of the Attestation described above is in conformity with the relevant Union harmonisation legislation:

Machinery Directive 2006/42/EC

ATEX Directive 2014/34/EU

by complying with the following statutory documents and harmonized standards:

EN ISO 12100:2010 Safety of Machinery - General Principles for Design

EN ISO 80079-36:2016 Explosive Atmospheres- Part 36: Non Electrical equipment for explosive atmospheres- Basic methods and requirements.

Providing all conditions of safe use / installation stated within the product manuals have been complied with and also installed in accordance with any applicable local codes of practice.

Signed for and on behalf of Carlisle Fluid
Technologies UK Ltd:

D Smith
5/2/20

Director of Sales (EMEA)
Bournemouth, BH11 9LH, UK

⚠ WARNING	⚠ CAUTION	NOTE
Hazards or unsafe practices which could result in severe personal injury, death or substantial property damage.	Hazards or unsafe practices which could result in minor personal injury, product or property damage	Important installation, operation or maintenance information.

⚠ WARNING

Read the following warnings before using this equipment.



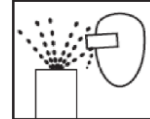
READ THE MANUAL. Before operating finishing equipment, read and understand all safety, operation and maintenance information provided in the operation manual.



AUTOMATIC EQUIPMENT. Automatic equipment may start suddenly without warning.



WEAR SAFETY GLASSES. Failure to wear safety glasses with side shields could result in serious eye injury or blindness.



PROJECTILE HAZARD. You may be injured by venting liquids or gases that are released under pressure, or flying debris.



DE-ENERGIZE, DE-PRESSURISE, DISCONNECT AND LOCK OUT ALL POWER SOURCES DURING MAINTENANCE. Failure to de-energize, disconnect and lock out all power supplies before performing equipment maintenance could cause serious injury or death.



KNOW WHERE AND HOW TO SHUT OFF THE EQUIPMENT IN CASE OF AN EMERGENCY.



NOISE LEVELS. The A-weighted sound level of pumping and spray equipment may exceed 85 dB(A) depending on equipment settings. Actual noise levels are available on request. It is recommended that ear protection is worn at all times while equipment is in use.



PRESSURE RELIEF PROCEDURE. Always follow the pressure relief procedure in the equipment instruction manual.



INSPECT THE EQUIPMENT DAILY. Inspect the equipment for worn or broken parts on a daily basis. Do not operate the equipment if you are uncertain about its condition.



OPERATOR TRAINING. All personnel must be trained before operating finishing equipment.



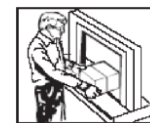
EQUIPMENT MISUSE HAZARD. Equipment misuse can cause the equipment to rupture, malfunction or start unexpectedly and result in serious injury.



PACEMAKER WARNING. You are in the presence of magnetic fields which may interfere with the operation of certain pacemakers.



HIGH PRESSURE CONSIDERATION. High pressure can cause serious injury. Relieve all pressure before servicing. Spray from the gun, hose leaks or ruptured components can inject fluid into your body and cause extremely serious injury.



KEEP EQUIPMENT GUARDS IN PLACE. Do not operate the equipment if the safety devices have been removed.



STATIC CHARGE. Fluid may develop a static charge that must be dissipated through proper grounding of the equipment, objects to be sprayed and all other electrically conductive objects in the dispensing area. Improper grounding or sparks can cause a hazardous condition and result in fire, explosion or electric shock and other serious injury.



NEVER MODIFY THE EQUIPMENT. Do not modify the equipment unless the manufacturer provides written approval.



PROP 65 WARNING. WARNING: This product contains chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.



PINCH POINT HAZARD. Moving parts can crush and cut. Pinch points are any areas where there are moving parts.

IT IS THE RESPONSIBILITY OF THE EMPLOYER TO PROVIDE THIS INFORMATION TO THE OPERATOR OF THE EQUIPMENT.

Specification

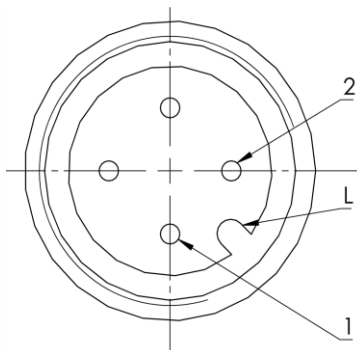
104261 for use with pump:	Maple 60, Maple 8/25
104262 for use with pump:	Maple 7/7 & 7/15, Maple 15/3 & 15/6, Maple 20, Maple 30
104263 for use with pump:	DX200-3 Series
Sensor output:	Namur, two-wire, M12x1 4-pin connector
Sensor current (mA):	Detect state: 1 max. No-detect state: 2.1 minimum
Nominal operating voltage:	8.2 Volts
Sensor state indicator:	Yellow coloured multihole LED
Speed (cycles/min):	0 min. to > 60 max.
Ambient temperature (°C):	+5 min. to +40 max.
Maximum air pressure (Bar):	7
Cable bend radius (mm):	Min. static: 50mm. Min. moving: 75mm

PRODUCT SPECIFIC WARNINGS

- **The sensor must only be connected via the supplied cable to a suitable switching isolation barrier amplifier located outside the hazardous zone designed to operate NAMUR type sensors. E.g. 195730 (Accessory).**
- **Maple pumps: Fitting or removing the cycle counter requires handling magnets with intense field strengths - not to be carried out by those wearing a pacemaker or similar device. Unrestrained magnets may move suddenly resulting in impact damage or attract debris.**
- Cable plug and sensor connector attach in one angular location only - do not force: align locating lug in sensor connector with notch in cable plug before pushing together and tightening threaded collar to secure.
- Do not use solvents or chemicals to clean the sensor plastic support. Only use a cotton cloth damped with water for wiping unit clean if required.
- Ensure pump is stopped and isolated from air and fluid systems before dismantling any part of the pump.
- During operation some pump surfaces may become very cold - risk of skin burn if dismantling pump immediately after shutting down.
- Route cables in a manner to avoid it becoming a trip hazard.
- Route sensor cable away from other power cables and avoid coiling to avoid inducing large unexpected currents.
- Turn off barrier amplifier power before connecting or disconnecting cable from sensor.
- The cycle counter does not contain serviceable parts - failure requires unit replacement (see spares kits 3, 4 or 5).
- Any earthing straps disconnected to carry out work on the pump unit must be replaced before pump is restarted.
- The sensor must not be subjected to any applied mechanical forces (examples: impacts or cable pulling) to avoid permanent damage.
- Use appropriate PPE when handling fluids such as grease.
- The cycle counter unit must not be exposed to long term sunlight or other sources of ultra-violet radiation to reduce risk of damage to plastic parts.

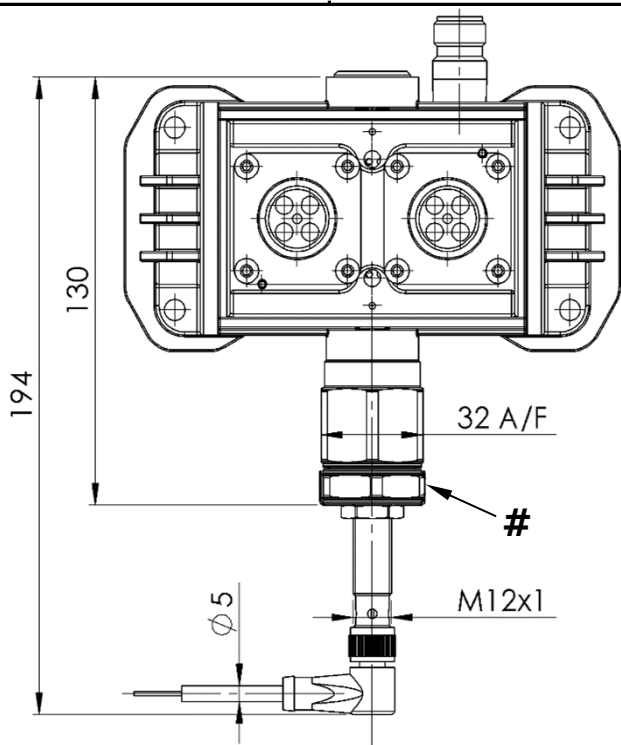
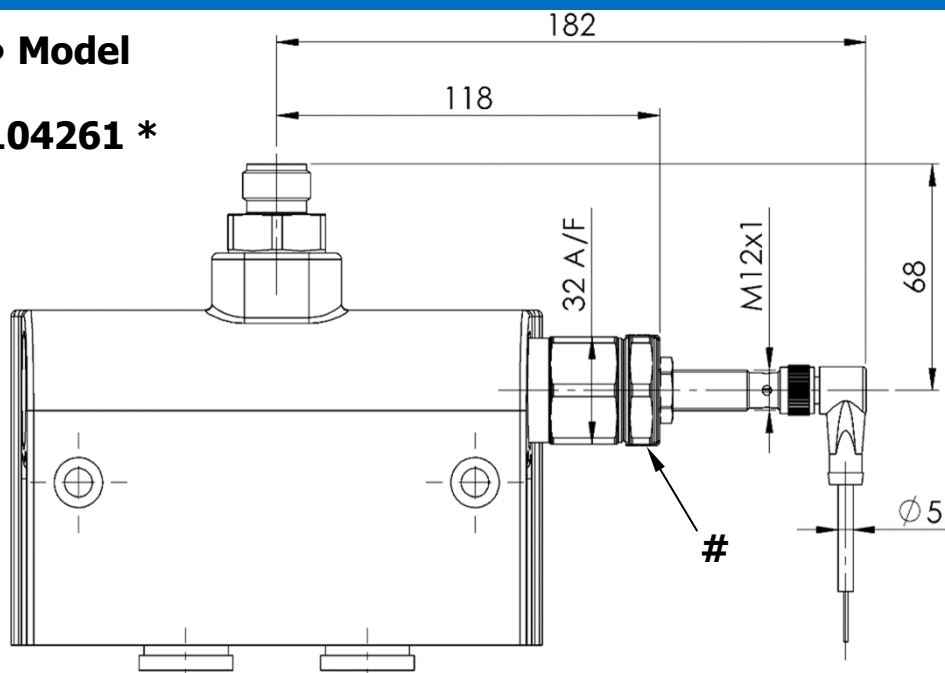
Dimensions and Mounting Details

Sensor connections

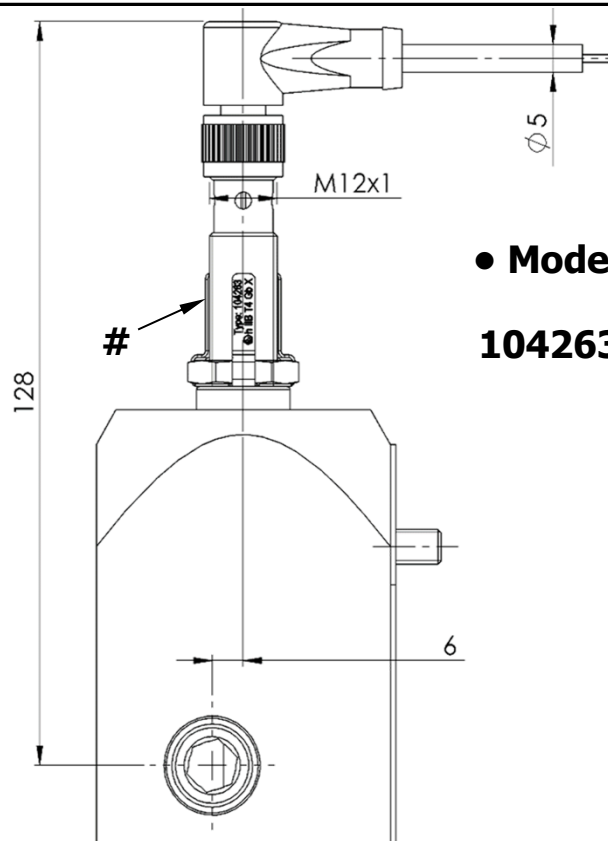


- 1: Supply
- 2: Return
- L: Connection locating lug

● Model 104261 *



● Model 104262



● Model 104263

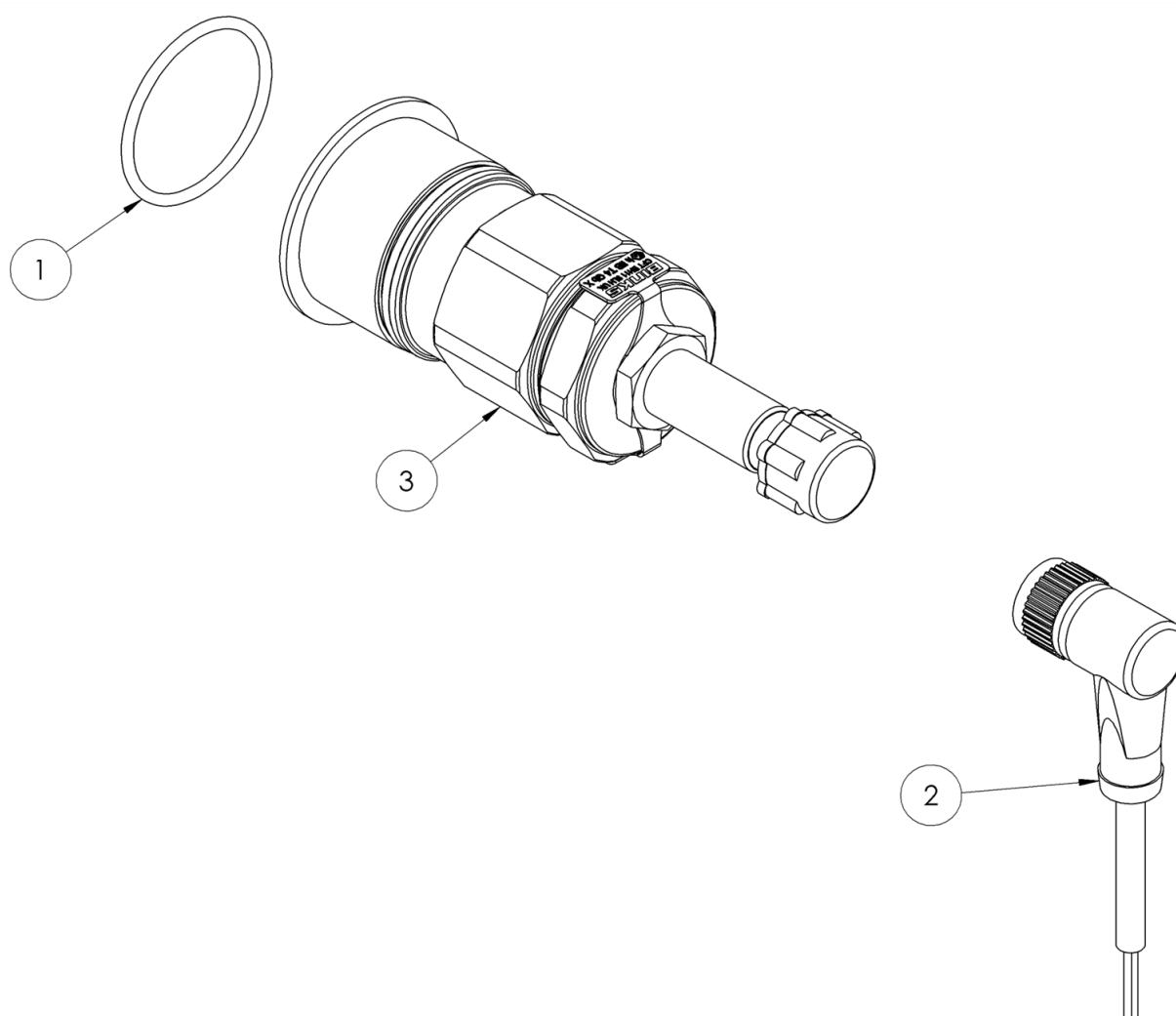
* 104261: Cycle counter unit can be fitted on the opposite side of the valve block if preferred.

Cycle counter unit serial identification tag. For units supplied already fitted to a pump no tag is fitted - serial identification is by use of the main pump serial tag.

Cycle Counter Kit Contents - 104261

ITEM	PART NO.	DESCRIPTION	QTY	SPARES KIT
1 *	162767	O-RING	1	1
2	195714	SENSOR CABLE - 10 METRES	1	
3	195736	CYCLE COUNTER BASE UNIT - MAPLE 60	1	4

Note: Included in the kit are loose sticky labels relating to legislative approval of the sensor itself. These labels must be retained for future information - for example by attaching to the inside back cover of this manual.



* Cycle counter kit 104261 contains one loose o-ring for use on remaining valve block end cap if removed. Spares kit 1 - 250826 - contains two o-rings to allow replacement on both ends.

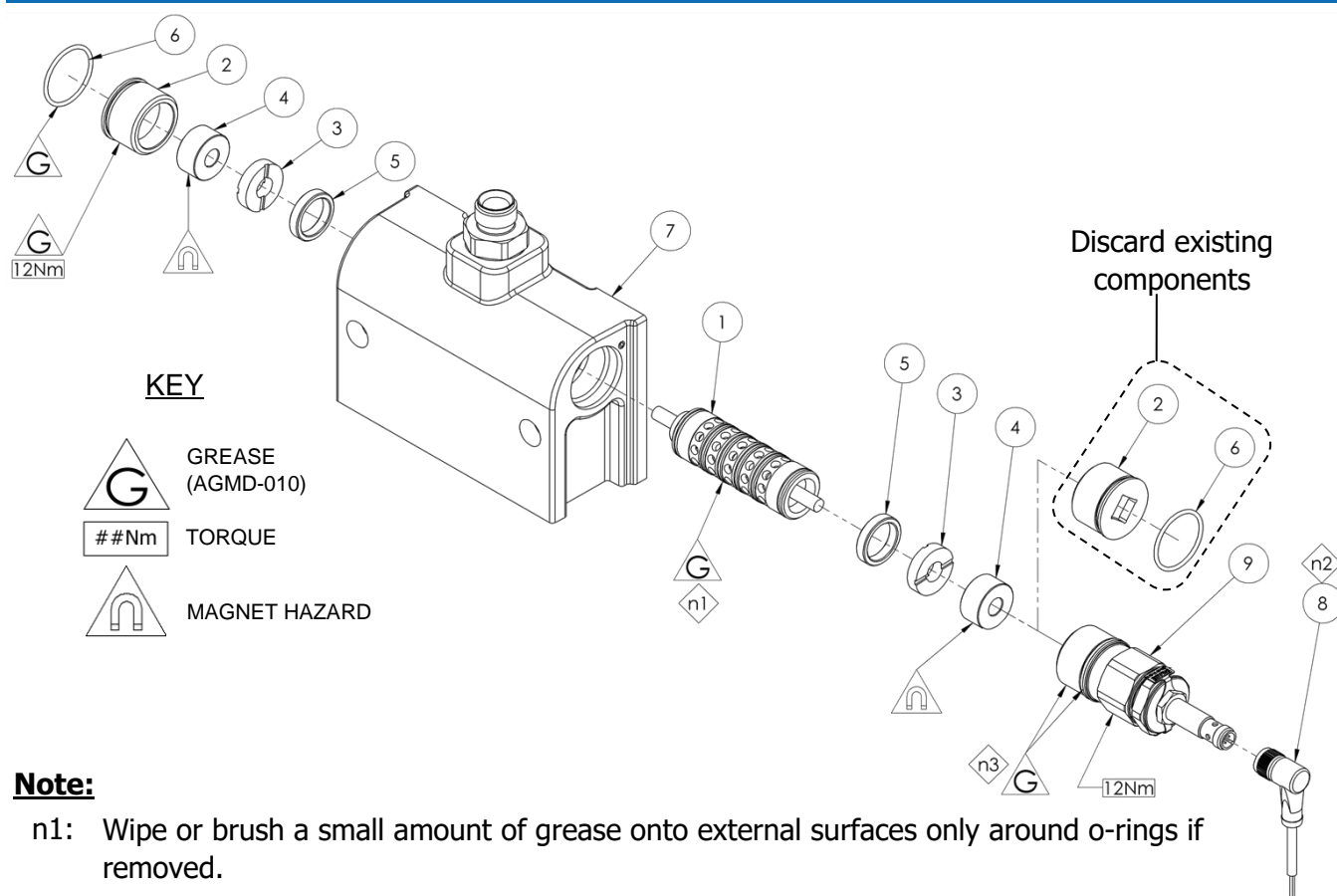
Installation - 104261

With reference to images and table over page

The simplest fitting procedure is to remove one end cap with its o-ring and replace with cycle counter unit, ensuring magnet remains in its correct location and without disturbing the spool and sleeve assembly. However, the following procedure outlines the removal of the spool and sleeve assembly with associated parts for cleaning to avoid contamination of the cycle counter.

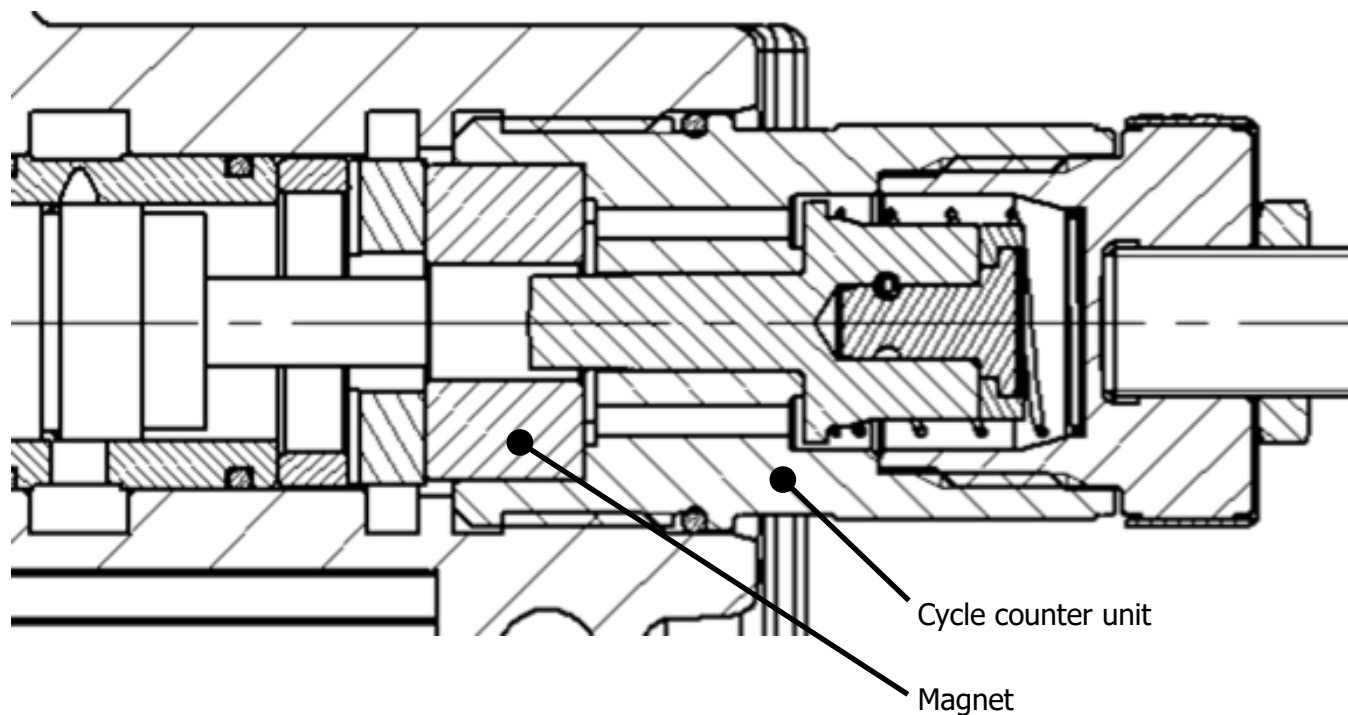
- A:** System check (if desired): Connect cable (8) to the sensor on unit (9) with power off and observing correct orientation. Turn on power then gently press in black plastic pin opposite end to sensor in unit (9) until it comes to a stop. The yellow sensor LED should turn off and then re-illuminate when the pin is released. Power off and remove cable from sensor.
- B:** With the pump stopped and isolated from the air supply system, use 1/2" drive square to unscrew then remove both end caps (2) with their o-rings (6) from main air valve assembly (7). Magnets (4) may come out with the end caps.
- C:** Push out complete spool assembly (1), both spacers (5) and bumpers (3) along with magnets (4) if not already removed.
- D:** Discard one valve block end cap (2) and o-ring (6) as highlighted in image but first remove magnet (4) if trapped inside and fit it into the cycle counter unit (9) as shown in the partial section image. Keep magnet clean - if metallic swarf attaches, it can often be removed by the use of sticky tape.
- E:** Clean valve block end cap (2) to be retained and replace its o-ring (6).
- F:** Clean all remaining removed components. Spool and sleeve assembly (1) have a precision fit together - if separated must be completely clean to avoid jamming and / or damage.
- G:** Replace spool and sleeve assembly (1), spacers (5) and bumpers (3) in their correct order of fit (as shown) centrally into main air valve assembly (7), lightly greasing where indicated.
- H:** Grease cycle counter unit (9) thread and o-ring and with magnet (4) fitted inside, insert then tighten into main air valve assembly (7). Tighten to specified torque - applied to wider flats on aluminium housing (32mm across flats) NOT to the narrower black plastic end cap.
- I:** Grease retained end cap (2) and its o-ring (6) and with its magnet (4) fitted inside, fit and tighten into main air valve assembly (7). Tighten to specified torque.
- J:** Screw the cable plug (8) onto the sensor connector on unit (9) - observe correct orientation.

Installation - 104261



Note:

- n1: Wipe or brush a small amount of grease onto external surfaces only around o-rings if removed.
- n2: Align lug in sensor with notch in plug before fitting.
- n3: Wipe or brush a small amount of grease onto thread and o-ring.



Partial section showing fitting of magnet in cycle counter unit.

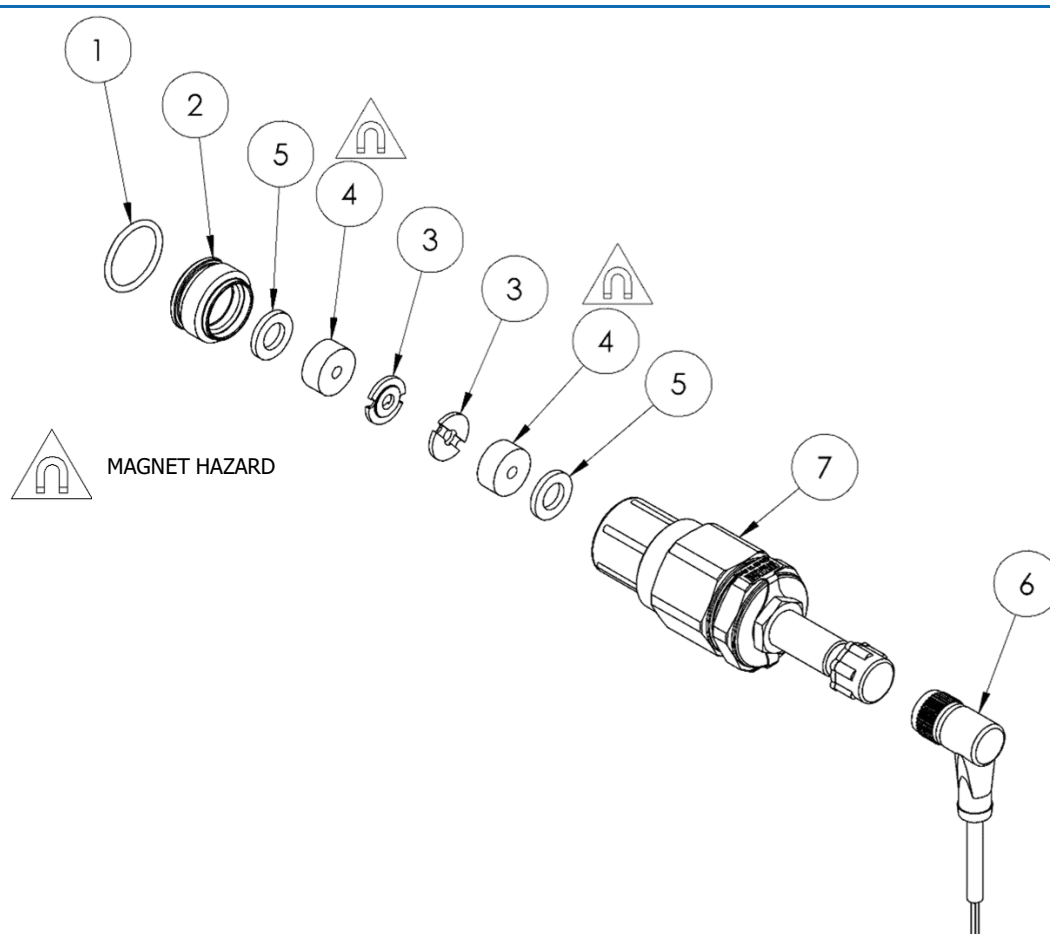
Components Identification - 104261

ITEM	PART NO.	DESCRIPTION	REMARKS
1	0115-010424	SPOOL AND SLEEVE ASSEMBLY	
2	0115-010425	VALVE BLOCK END CAP	
3	0115-010427	BUMPER	
4	0115-010428	MAGNET	
5	0115-010431	SPACER	
6	162767	O-RING	
7	193605	MAIN AIR VALVE ASSEMBLY	
8	195714	SENSOR CABLE - 10 METRES	
9	195736	CYCLE COUNTER BASE UNIT - MAPLE 60	

Cycle Counter Kit Contents - 104262

ITEM	PART NO.	DESCRIPTION	QTY	SPARES KIT
1	0115-010049	O-RING	1	2
2	195707	VALVE BLOCK END CAP	1	
3	195708	BUMP STOP	2	2
4	195709	MAGNET - COUNTER	2	2
5	195710	SPACER - COUNTER	2	2
6	195714	SENSOR CABLE - 10 METRES	1	
7	195737	CYCLE COUNTER BASE UNIT - MAPLE 30	1	5

Note: Included in the kit are loose sticky labels relating to legislative approval of the sensor itself. These labels must be retained for future information - for example by attaching to the inside back cover of this manual.

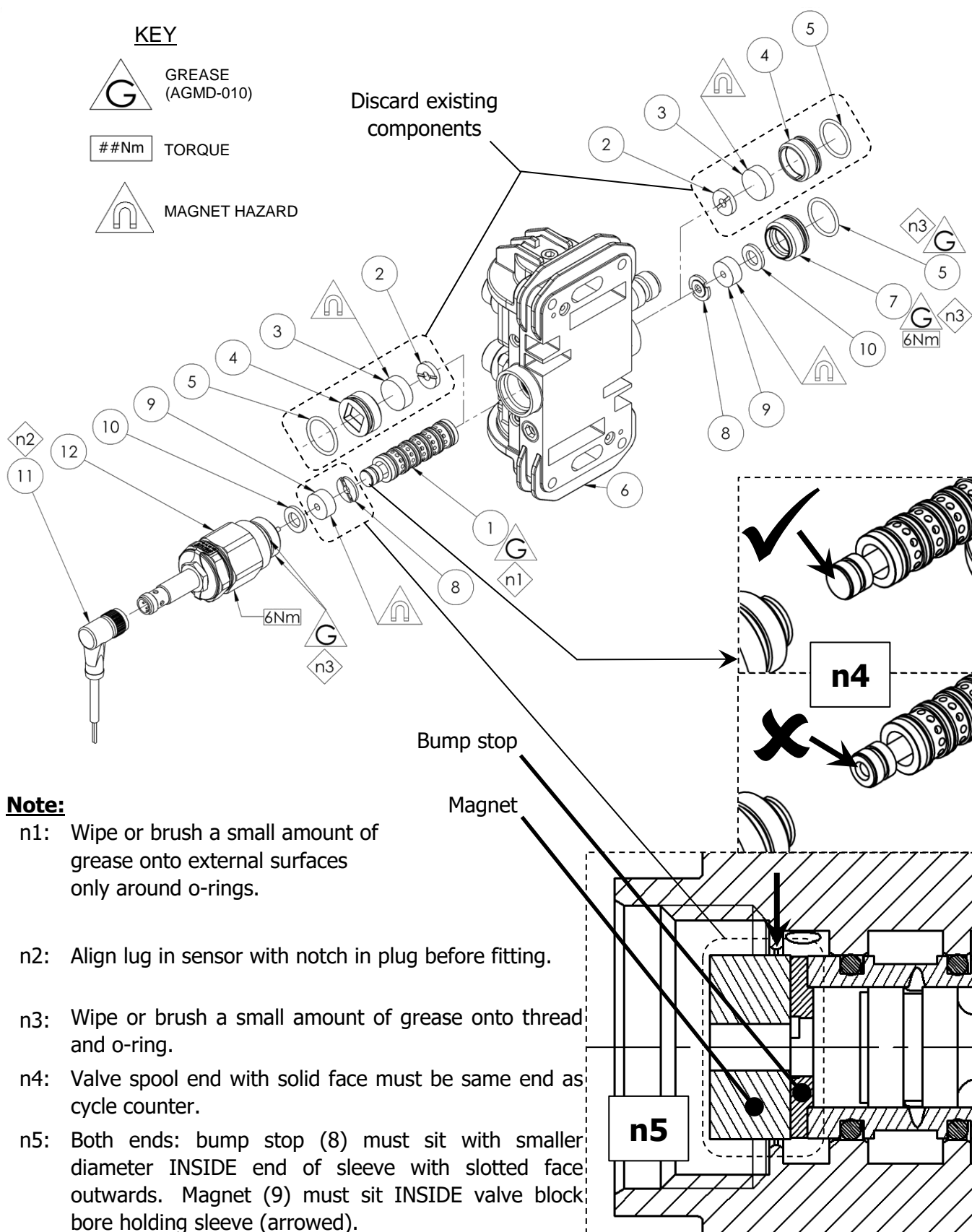


Installation - 104262

With reference to images and table over page

- A:** System check (if desired): Connect cable (11) to the sensor on unit (12) with power off and observing correct orientation. Turn on power then gently press in black plastic pin opposite end to sensor in unit (12) until it comes to a stop. The yellow sensor LED should turn off and then re-illuminate when the pin is released. Power off and remove cable from sensor.
- B:** With the pump stopped and isolated from the air supply system, use 1/2" drive square to unscrew both end caps (4). Remove and discard at both ends: end caps (4) with o-rings (5), magnets (3) and bump stops (2).
- C:** Remove spool and sleeve assembly (1) from air valve assembly (6), clean, lightly grease o-ring faces only and re-insert centrally positioned down bore with solid end of spool facing end to receive cycle counter unit (12) - see note 3 in adjoining illustration. Spool and sleeve assembly have a precision fit together - if separated must be completely clean to avoid jamming and / or damage.
- D:** At both ends insert new bump stops (8) and magnets (9). Ensure bump stops are inserted the correct way round with smaller diameter inside sleeve and magnets are sitting inside valve bore - see note 4 in adjoining illustration.
- E:** Carefully (avoiding damage to central drive pin) fit one spacer (10) into mating end face bore of cycle counter unit (12) and the other spacer (10) into the bore of the new end cap (7).
- F:** Grease cycle counter unit (12) thread and its o-ring then fit and tighten into thread on end of valve bore of air valve assembly (6). Tighten to specified torque - applied to wider flats on aluminium housing (32mm across flats) NOT to the narrower black plastic end cap.
- G:** If not already fitted, fit new o-ring (5) onto new end cap (7), grease thread and the o-ring then using a 1/2" drive screw in and tighten to specified torque.
- H:** Screw the cable plug (11) onto the sensor connector on unit (12) - observe correct orientation.

Installation - 104262



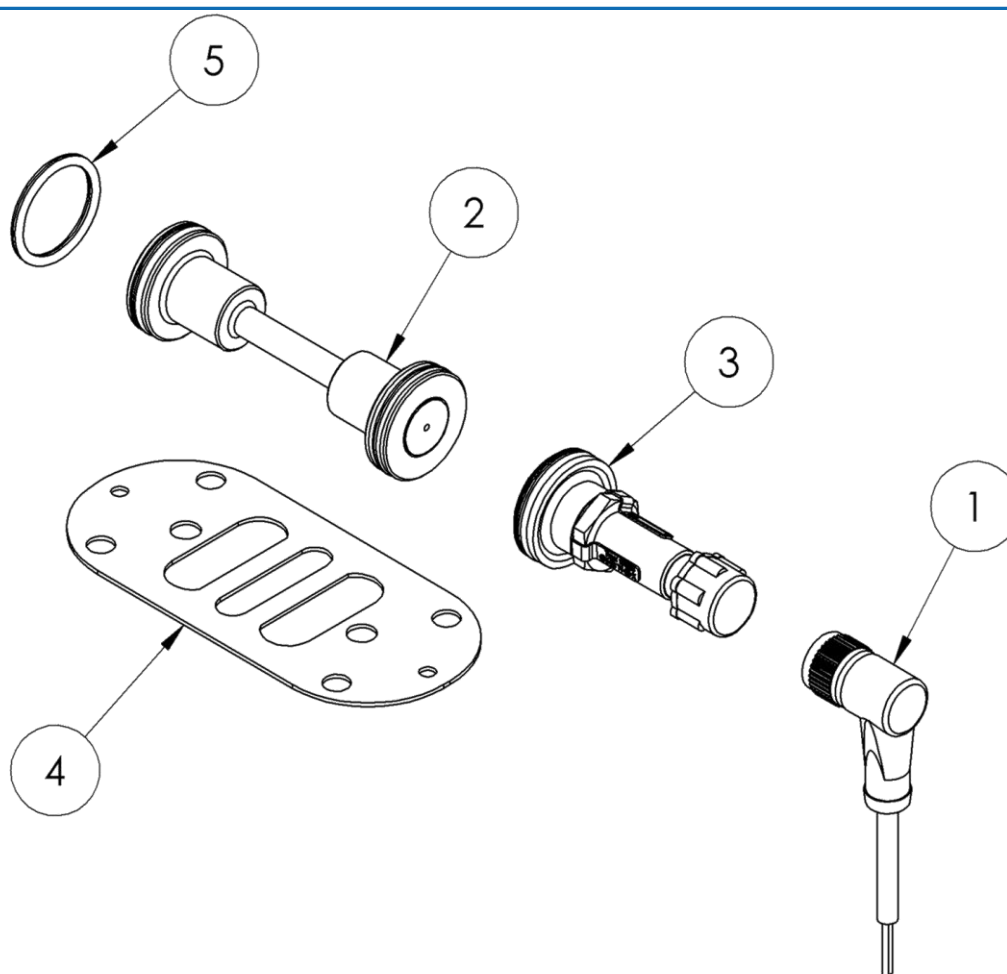
Components Identification - 104262

ITEM	PART NO.	DESCRIPTION	REMARKS
1	0115-010015	SPOOL AND SLEEVE ASSEMBLY	
2	0115-010016	BUMP STOP (EXISTING)	
3	0115-010017	MAGNET (EXISTING)	
4	0115-010018	VALVE BLOCK END CAP (EXISTING)	
5	0115-010049	O-RING	
6	0115-010102	AIR VALVE ASSEMBLY	
7	195707	VALVE BLOCK END CAP (NEW)	
8	195708	BUMP STOP (NEW)	
9	195709	MAGNET (NEW)	
10	195710	SPACER - COUNTER	
11	195714	SENSOR CABLE - 10 METRES	
12	195737	CYCLE COUNTER BASE UNIT - MAPLE 30	

Cycle Counter Kit Contents - 104263

ITEM	PART NO.	DESCRIPTION	QTY	SPARES KIT
1	195714	SENSOR CABLE - 10 METRES	1	
2	195725	SPOOL AND TARGET ASSEMBLY - DX200-3	1	
3	195738	CYCLE COUNTER SENSOR UNIT - DX200-3	1	6
4	DVX-346	GASKET	1	3
5 *	SPA-122X	O-RING	1	3

Note: Included in the kit are loose sticky labels relating to legislative approval of the sensor itself. These labels must be retained for future information - for example by attaching to the inside back cover of this manual.



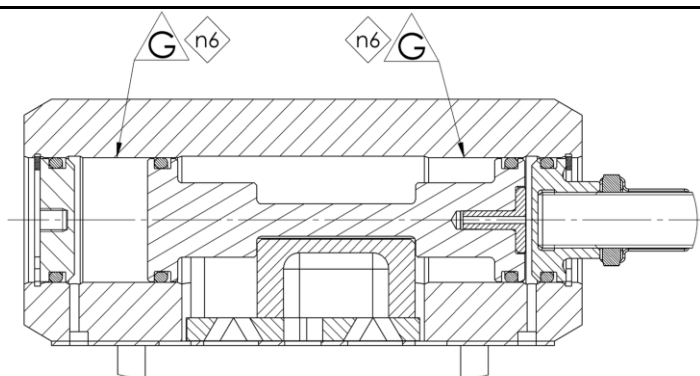
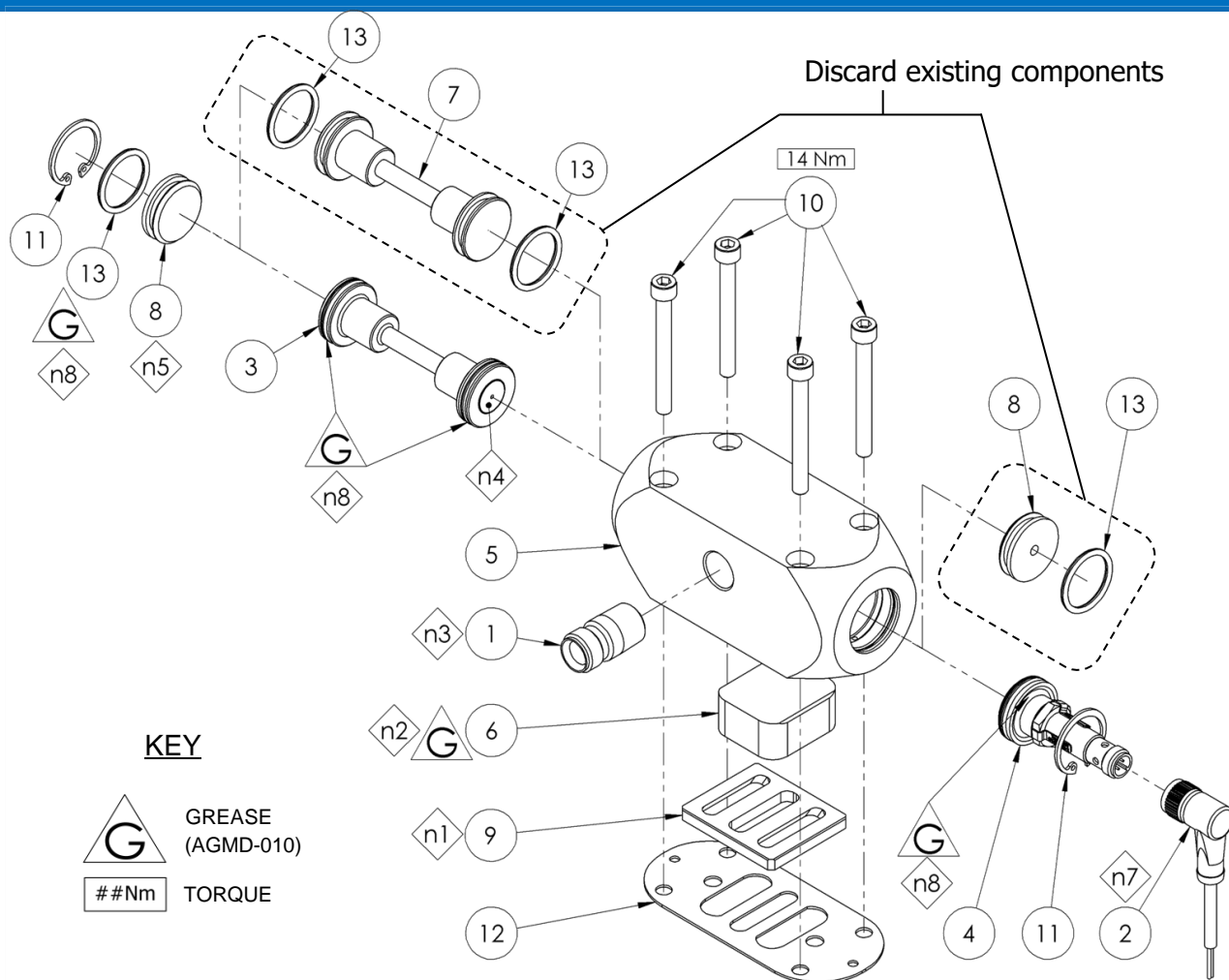
* Cycle counter kit 104263 contains one loose o-ring for use on remaining end cap. Spares kit 3 - 250828 - contains all four o-rings.

Installation - 104263

With reference to images and table over page

- A:** System check (if desired): Connect cable (2) to the sensor on housing assembly (4) with power off and observing correct orientation. Turn on power then gently bring target face (see note 4) in new spool (3) close up against flat circular end face of housing assembly (4) - avoid impacting faces together. The yellow sensor LED should turn off and then re-illuminate when the two surfaces are separated. Power off and remove cable from sensor.
- B:** With the pump stopped and isolated from the air supply system, remove the air line connection (1) from the valve block (5).
- C:** Release the four caphead screws (10) in the valve block (5) and lift the complete valve block assembly off the pump. Remove and discard the existing valve block gasket (12).
- D:** Remove ceramic valve plate (9) and plastic slider block (6) inside. Clean and retain both for reuse.
- E:** Remove circlips (11) at both ends of the valve spool bore. Caution - circlips may spring out!
- F:** Use an M5 threaded screw to pull out both end caps (8) then push out the existing spool (7).
- G:** Retain one end cap (8), remove and discard its existing o-ring, clean end cap then fit new o-ring (13) in kit.
- H:** Grease o-rings on new spool (3), retained end cap (8) and housing assembly (4). Grease valve bore (note 6).
- I:** Push new spool (3) approximately centrally into valve block (5) bore with metal target end (note 4) facing to the right (looking onto air line connection face of block). Avoid damaging o-rings.
- J:** Press the retained end cap (8) into the left end of the bore - see note 5 - and the housing assembly (4) into the right end (looking onto air line connection face of block). Avoid damaging o-rings.
- K:** Refit circlips (11) into their grooves in the valve block (5) at both ends. By access through the central slider block hole, check spool (3) can slide up and down the bore - ends may be pushed outwards against the circlips. Avoid heavy hand pressure bending centre of spool.
- L:** Regrease then refit the slider block (6) (large flat face inwards) followed on by ceramic slider block (9) - see note 1.
- M:** Fit new gasket (12) onto valve block (5) then refit to pump with sensor end at the top using screws (10). Tighten evenly to specified torque.
- N:** Refit air line connection (1) to the valve block (5). It may be necessary to use low strength thread sealant or PTFE tape to provide an airtight seal.
- O:** Screw cable plug (2) onto the sensor connector of housing assembly (4) - observe correct orientation.

Installation - 104263



Note:

- n1: Side with wider slots faces gasket.
- n2: Grease all external faces except that sliding on valve plate.
- n3: Remove air line fitting before extracting spool.
- n4: Steel target end faces sensor.
- n5: Chamfered face inside.
- n6: Grease o-ring mating faces.
- n7: Align lug in sensor with notch in plug before fitting.
- n8: Wipe or brush a small amount of grease onto each o-ring.

Components Identification - 104263

ITEM	PART NO.	DESCRIPTION	REMARKS
1	180584 OR SIMILAR	EXISTING AIR LINE CONNECTION	
2	195714	SENSOR CABLE - 10 METRES	
3	195725	SPOOL ASSEMBLY (NEW)	
4	195738	CYCLE COUNTER SENSOR UNIT - DX200-3	
5	DVX-317	VALVE BLOCK	
6	DVX-318	SLIDER BLOCK	
7	DVX-323	SPOOL (EXISTING)	
8	DVX-324	END CAP	
9	DVX-343	VALVE PLATE	
10	DVX-344	CAPHEAD SCREW	
11	DVX-345	INTERNAL CIRCLIP	
12	DVX-346	GASKET	
13	SPA-122X	O-RING	

Fault Finding

Symptom	Possible Cause	Remedy
Cycle counter inoperative after fitting	Incorrect fitting onto pump	<p>104261: Check spool and sleeve are central in valve block. Check parts assembled and mounted in correct order. Check magnets are seated correctly - check against outline dimensions.</p> <p>104262: Check spool and sleeve are central in valve block. Check for correct assembly especially: bump stops fitted into ends of sleeve bore; new end cap and magnet fitted; thin drive pin not snapped; correct orientation of valve spool - see note 3; magnets sit inside bore - see note 4. Check against outline dimensions.</p> <p>104263: Check spool is free to move; end cap and sensor housing assy are sitting up against circlips; circlips are fitted correctly in grooves; spool steel target face end is same end of bore as sensor - see note 4.</p>
	Incorrect electrical connection	Check: correct plug fit and orientation on sensor, connecting cable wired correctly to barrier unit, barrier unit is operating correctly.
During operation cycle counter ceases operation or becomes intermittent. (Pump may or may not continue to operate.)	Hydraulic lock (104261 & 104262)	Oil and / or water has filled the cycle counter unit. Remove unit and allow any trapped fluid to exit via the two small vent holes under the magnet.
	Internal mechanical failure or sensor failure	<p>After removing unit check:</p> <ul style="list-style-type: none"> - Drive pin does not return - internal spring fractured (104261 & 104262) - Intermittent operation - target loose - Unit jammed - target has shifted from normal position - Drive pin fractured (104261 & 104262) - Sensor failure - no LED flash with "System check" (point A, Installation section for relevant unit) <p>Any of these faults will require unit replacement - see spares kits</p>
	Connected electrical system fault	<p>Check:</p> <ul style="list-style-type: none"> - Sensor / connection not damaged - Connecting cable not damaged / cut - Connected barrier unit wired and operating correctly

Maintenance schedule

Inspection	Operation
No regular maintenance is required on the cycle counter unit itself. For regular maintenance requirements of the pump unit to which it is attached please see the separate pump service manual.	

Accessories		
PART NO.	DESCRIPTION	QTY
195714	SENSOR CABLE - 10 METRES	1
195730	1 CHANNEL NAMUR SENSOR EX BARRIER AMPLIFIER - 24V DC SUPPLY	1
195731	SENSOR CABLE - 20 METRES	1
195732 *	SENSOR CABLE - 40 METRES	1
AGMD-010	KLUBER ISOFLEX TOPAS NB52 GREASE	1

* **WARNING :** Very long cables running the low current sensor signal may require additional EMC measures.

Spares Kits

KIT No.	PART NO.	DESCRIPTION	QTY	REMARKS
①	250826	104261 CYCLE COUNTER SERVICE KIT	1	
②	250827	104262 CYCLE COUNTER SERVICE KIT	1	
③	250828	104263 CYCLE COUNTER SERVICE KIT	1	
④	195736	CYCLE COUNTER BASE UNIT - MAPLE 60	1	
⑤	195737	CYCLE COUNTER BASE UNIT - MAPLE 30	1	
⑥	195738	CYCLE COUNTER SENSOR UNIT - DX200- 3	1	

NOTES

NOTES

WARRANTY POLICY

This product is covered by Carlisle Fluid Technologies' materials and workmanship limited warranty. The use of any parts or accessories, from a source other than Carlisle Fluid Technologies, will void all warranties. Failure to reasonably follow any maintenance guidance provided, may invalidate any warranty.

For specific warranty information please contact Carlisle Fluid Technologies.

Carlisle Fluid Technologies is a global leader in innovative finishing technologies. Carlisle Fluid Technologies reserves the right to modify equipment specifications without prior notice.

DeVilbiss®, Ransburg®, MS®, BGK®, and Binks® are registered trademarks of Carlisle Fluid Technologies, Inc.

© 2020 Carlisle Fluid Technologies, Inc.

All rights reserved.

For technical assistance or to locate an authorised distributor, contact one of our international sales and customer support locations below.

Region	Industrial / Automotive	Automotive Refinishing
Americas	Tel: 1-888-992-4657 Fax: 1-888-246-5732	Tel: 1-800-445-3988 Fax: 1-800-445-6643
Europe, Africa, Middle East, India	Tel: +44 (0)1202 571 111 Fax: +44 (0)1202 573 488	
China	Tel: +8621-3373 0108 Fax: +8621-3373 0308	
Japan	Tel: +81 45 785 6421 Fax: +81 45 785 6517	
Australia	Tel: +61 (0) 2 8525 7555 Fax: +61 (0) 2 8525 7575	

For the latest information about our products, visit www.carlisleft.com



SOLUTIONS FOR YOUR WORLD